



DEPARTMENT OF WATERSHED MANAGEMENT INTERIM SANITARY SEWER CAPACITY EVALUATION PROGRAM

PROGRAM NUMBER:	CD-P-001
PROGRAM OWNER (Division/Office):	Infrastructure Acquisitions Program
PROGRAM APPROVAL:	DCCO/Infrastructure
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PROGRAM REVISION NUMBER:	1

INTRODUCTION

DeKalb County (the “County”) has a responsibility to use its best efforts to operate, maintain, and construct its sanitary sewer system in such a manner to achieve the goals of public health protection, full compliance with the Clean Water Act, the Georgia Water Quality Control Act, and the elimination of Sanitary Sewer Overflows (“SSOs”). The County is currently undertaking a combination of Capacity, Management, Operations, and Maintenance (“CMOM”) programs and capital improvements under a Consent Decree to meet this responsibility. As part of this undertaking, the County is also planning for future uses of the sanitary sewer system while orchestrating improvements using certain tools such as flow monitoring, hydraulic modeling, and engineering judgment to evaluate the hydraulic performance of the system and the impact of future connections. As sewer capacity is required for new connection requests and increases in flow contributions, the County will construct the corresponding capacity where appropriate, and will determine the appropriate cost sharing between current users, future users, and developers. Not every new connection would warrant participation by the requestor of the connection in performing system upgrades.

1. PURPOSE

The purpose of this Interim Sanitary Sewer Capacity Evaluation Program (“Program”) is to define the acceptable level of service that will allow for additional sewer contributions from new or improved developments and to outline certain triggers whereby the County would consider requiring financial participation or alternative capacity remedies by parties requesting sewer capacity certification. This Program is to be used until the County either adopts a capacity assurance program or a fully dynamic hydraulic model is developed.

2. SCOPE

For consistency in the process by which capacity determinations are made, this Program shall apply to all proposed new connections or modifications to existing connections by any entity, public or private, which result in or has the potential to result in additional flow contributions to the DeKalb County wastewater collection and transmission system (“WCTS”) and wastewater treatment facilities.

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3. PROGRAM REQUIREMENTS

Acceptable Sewer Capacity Requests shall be certified on the County's behalf by professional engineers registered in the State of Georgia and shall be approved by a responsible individual at the County. Sound engineering judgment shall be employed in the application of the Program requirements presented below. If on a case-by-case basis the capacity analysis differs from the requirements outlined below, based on the judgment of a professional engineer, that engineer will provide supporting information when determining acceptable capacity for proposed additional flows. In such cases, the reasoning and supporting information shall be documented and shall be included in the periodic review and update of this Program.

Commented [A1]: The Intent of the PE certification requirement is that the certifying PE is acting on behalf of the County. He or she therefore requires full access to all information necessary to make a proper determination. Capacity certification is likely best performed by a PE internal to the county.

3.1. Calculation of Design Flow Rates

The calculation of the applicant's design average daily flow rates and design peak flow rates shall conform to the standard design flow rates for various contributor classes as provided by the County in Appendix B of the County's Sewer Capacity Evaluation Request form. Alternative flow contribution rates shall be considered with supporting information. Design peak flow rates shall be used by the County in the certification of capacity for both dry and wet weather conditions. All Sewer Capacity Request forms with design average daily flow rates exclusive of any offsets or allowances which exceed 500 gallons per day shall be signed and sealed by a professional engineer registered in the State of Georgia.

3.2. Capacity Evaluation Based Upon the Historical SSO Record

The historical record of SSO occurrences since January 2015 has been reviewed to determine whether sufficient evidence exists to conclude that acceptable capacity is not available for the sewer system downstream of the proposed connection. A list of capacity-related SSOs has been created and shall be maintained and updated on a monthly basis based on a review of all subsequent SSO occurrences. Engineering judgment should be used to limit the inclusion of wet or dry weather SSOs that are not related to capacity. Therefore,

- Do not include SSOs attributed exclusively to maintenance issues such as FOG, debris, roots, etc. in the review;
- Do not include SSOs where subsequent system improvements have been completed to eliminate a repeat capacity related SSO occurrence;
- Do not include SSOs unless the SSOs have the potential to occur again under normal annual dry and wet weather flow conditions; and
- Do not include SSOs attributed to operational issues at lift stations or wastewater treatment facilities which have subsequently been remedied.

Commented [A2]: This is a major weak point. These exclusions raise serious concerns for EPA/EPD. All SSOs are prohibited under the CWA. These exclusions are not consistent with the CD.

Commented [A3]: See SOP comment

The County shall review the capacity-related SSO list at least quarterly to determine whether current information indicates that an SSO occurrence is no longer determined to be related to capacity as defined above. The reason for removal of an SSO from the list shall be properly documented.

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3.3. Capacity Evaluation of Collection System Based Upon Hydraulic Analysis

Hydraulic analyses to support capacity evaluations shall be completed using the County's hydraulic modeling software. Each hydraulic analysis shall include the proposed design peak flow from all pending and approved sewer connection requests whose actual flow contributions have not been recorded in the latest model calibrated flow inputs. Design peak flow rate deductions for developments with properties that have discontinued discharges to the WCTS or other changes to reduce the flow contributions to the sewer system which have not been recorded in the latest model calibrated flow inputs shall be incorporated into the Sewer System Capacity Allotment tracking form used for hydraulic analyses.

Should the hydraulic analysis of dry or wet weather conditions predict insufficient capacity, the County shall assess the validity of the prediction based upon engineering judgment and a review of the historical SSO record. As a first step, verification of system asset information via field survey may take place. Temporary flow meters may be installed downstream of the development's proposed connection to help validate model results or when the County believes additional flow monitoring is needed to better determine existing conditions. The flow meters shall be installed for a period of time sufficient to provide supporting evidence for the engineering judgment employed to certify capacity. Flow monitoring data from a prior capacity request evaluation or a prior flow study may also be used to assess capacity should engineering judgment determine that the location and time period of the flow monitoring is appropriate and sufficient to certify capacity.

3.3.1. Dry Weather Flow Condition and Level of Service

The dry weather flow condition shall be the dry weather flow pattern developed from the most current flow monitoring study as calibrated in the County's hydraulic model. Under the simulated dry weather condition with design peak flow contributions from pending and approved sewer connection requests, gravity pipes with projected flows less than or equal to 85% capacity shall be considered to have acceptable capacity. Engineering judgment shall be utilized and documented when evaluating acceptable capacity where the model predicts flow rates exceeding 85% of the pipe capacity due to reverse-grade or flat-grade pipe segments.

Commented [A4]: 85% is higher than industry standards for design dry weather flow. EPA/EPD will not specify the acceptable limit but recommends that the County consider industry standards in its solutions.

Commented [A5]: ...or provide justification for using a non-industry standard.

3.3.2. Wet Weather Flow Condition and Level of Service

The wet weather flow condition shall be the maximum month average daily flow calculated from the most current flow monitoring study as calibrated in the County's hydraulic model. Under the simulated wet weather condition with design peak flow contributions from pending and approved sewer connection requests, gravity pipes with a projected flows less than ~~or equal to~~ full pipe capacity shall be considered to have acceptable capacity.

Commented [A6]: Language needs to be changed, at full pipe capacity you do not have any additional capacity. You are allowed to go up to full pipe, but that is the limit.

3.4. Capacity Evaluation of Transmission System

The firm capacity of each lift station shall be defined as its maximum flow capacity with the largest pump out of service. Lift Stations whose firm capacity exceeds the maximum flow rates simulated by the model to be conveyed to the lift station under the dry and wet weather flow conditions described in Section 3.3.1 and Section 3.3.2 above shall be considered to have acceptable capacity.

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3.5. Capacity Evaluation of Wastewater Treatment System

Wastewater treatment systems with sufficient capacity to process the maximum flow rates simulated by the model to be conveyed to the wastewater treatment system under the dry and wet weather flow conditions described in Section 3.3.1 and Section 3.3.2 above without resulting in bypasses or diversions prohibited by the wastewater treatment system's current National Pollution Discharge Elimination System (NPDES) permit shall be considered to have acceptable capacity.

Commented [A7]: See EPA/EPD definitions for adequate Capacity for the WCTS, Conveyance and treatment below...

3.6. Capacity Evaluation of Intergovernmental Connections

Connections to other governmental jurisdictions shall be considered to have acceptable capacity so long as the maximum flow rates simulated by the model under the dry and wet weather flow conditions described in Section 3.3.1 and Section 3.3.2 above are less than the maximum flow rate provided in the County's associated Intergovernmental Agreements.

3.7. Conditional Approval of Capacity

Conditional approval of capacity may be made based upon the options provided below:

3.7.1. Completion of Capacity Improvement Projects

Conditional approval of capacity may be made when capacity improvement projects are planned which will convey the design peak flow rates from all pending, conditionally approved, and approved capacity requests so long as such projects meet the following requirements:

- Eliminates potential reoccurrences of capacity-related SSOs described in Section 3.2 above; and
- Conveys the peak flow rate simulated by the model under the dry and wet weather conditions described in Section 3.3.1 and Section 3.3.2 above at less than or equal to the limits required for consideration of acceptable capacity as defined in this Program.

Developers may fund and/or construct capacity improvement projects when approved by the County. Capacity improvement projects meeting the requirements described above must be completed prior to the addition of the proposed flow contribution.

3.7.2. Other Proposed Alternative Capacity Solutions

Applicants may submit alternative proposals, such as the design and construction of on-site storage systems, to remedy capacity limitations in order to gain conditional capacity approval. These alternative solutions must be designed and signed by a professional engineer registered in the State of Georgia and shall be subject to review and approval by the County with an avenue for appeal provided. Such solutions, if approved by the County, must be completed prior to the addition of the proposed flow contribution.

Commented [A8]:

Commented [A9R8]: Should be stated clearly to indicate project completion prior to connection to the WCTS.

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Definitions:

1.

Adequate Treatment Capacity – Adequate treatment capacity shall be demonstrated by the Defendant’s certification that the Wastewater Treatment Facility which will receive flow from newly authorized sewer service connection(s) or increased flows from existing sewer service connections will not be in “non-compliance” for quarterly reporting as defined in 40 C.F.R. Part 123.45, Appendix A, at the time the Wastewater Treatment Facility receives the flow from the newly authorized sewer service connection(s) or increased flows from existing sewer service connections, and the flow predicted to occur from all other authorized sewer service connections which have not begun to discharge into Defendant’s Wastewater Collection and Transmission Systems.

2.

Adequate Transmission Capacity – Adequate transmission capacity shall be demonstrated by the Defendant’s certification that each pump station through which all flow from the newly authorized sewer service connection(s) or increased flows from existing sewer service connections passes to the Wastewater Treatment Facility receiving such flow can transmit the existing one (1) hour peak flow passing through the pump station plus the addition to existing peak flow predicted to occur from the newly authorized sewer service connection(s) or increased flows from existing sewer service connections, and the addition to existing peak flow predicted to occur from all other authorized sewer service connections which have not begun to discharge into Defendant’s Wastewater Collection and Transmission Systems.

3.

Adequate Collection Capacity – Adequate collection capacity shall be demonstrated by the Defendant’s certification that each Gravity Sewer Line through which all flow from the newly authorized sewer service connection(s) or increased flows from existing sewer service connections passes to the Wastewater Treatment Facility receiving such flow can carry the existing one (1) hour peak flow passing

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through the Gravity Sewer Line plus the addition to existing peak flow predicted to occur from the newly authorized sewer service connection(s) or increased flows from existing sewer service connections, and the addition to that existing peak flow predicted to occur from all other authorized sewer service connections which have not begun to discharge into the Defendant's Wastewater Collection and Transmission Systems, provided as follows:

(a) The Defendant may authorize the additional flow upon a determination that capacity is available to carry existing and new flows in Defendant's Wastewater Collection and Transmission Systems without causing Surcharge.

(b) In developing estimates and projections for certifying adequate capacity, the Defendant shall use records, flow meter records, good engineering judgment, and the Hydraulic Model, Macro System Evaluation, Peak Flow Evaluations, and Sewer System Evaluation Survey results when available. Flows to be considered shall include the contributions to the Defendant's Wastewater Collection and Transmission Systems received from within its jurisdictional boundaries as well as any contributions received from outside its jurisdictional boundaries.

(c) For the purpose of the Interim Capacity Evaluation and SOP documents, the term "one hour peak flow" shall mean the greatest flow in a sewer averaged over a sixty (60) minute period at a specific location expected to occur as a result of a representative 2 year-24 hour storm event. The term "Surcharge Condition" shall mean the condition that exists when the supply of wastewater resulting from the one (1) hour peak flow is greater than the capacity of the pipes to carry it and the surface of the wastewater in manholes rises to an elevation greater than twenty-four (24) inches above the top of the pipe or within three (3) feet of the rim of the manhole, and the sewer is under pressure or head, rather than at atmospheric pressure, unless the County has, identified that pipe segment and manhole as designed to operate in that condition, in which case the identified level of surcharge will be used. However any rise in elevation above the top of the pipe shall be considered a Surcharge Condition if the manhole has

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experienced a wet weather SSO since the effective date of the CD (excluding those SSOs caused by severe natural conditions such as hurricanes, tornados, widespread flooding, earthquakes, and other similar natural conditions), unless the County can certify that the cause of the SSO has been corrected through improvements to the WCTS.